IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A photo radiation intensity directional sensor comprising a housing having a transparent or translucent portion, and a printed circuit board placed in such way in the housing that one of ~~its~~ printed circuit board edges faces the transparent or translucent portion, at least a first and a second sensing element sensitive to radiation are placed at a first side of the printed circuit board, where the first and second sensing elements are separated by a first flange, serving as a shading element, at least a third sensing element sensitive to radiation is placed at a second side of the printed circuit board, where said sensing elements are arranged to detect both the direction and the intensity of the radiation source and for producing output signals which are used for estimating the sun radiation heating impact, and where the printed circuit board is arranged in such a way that it functions as a shading element between the areas on its first and second side where the sensing elements are mounted.

2. (Previously Presented) A photo radiation intensity directional sensor according to claim 1, wherein a fourth sensing element is placed at the second side of the printed circuit board, where the third and fourth sensing elements are separated by a second flange serving as a shading element.

3. (Previously Presented) A photo radiation intensity directional sensor according to claim 2, wherein the housing comprises a chamber containing a diffusive compound that is a potting, which compound is positioned between said housing and at least one of the first, second, third or fourth sensing elements.

4. (Currently Amended) A photo radiation intensity directional sensor according to claim 1, wherein the shading elements are arranged to prevent exposure of radiation to the sensing elements, which are separated by the shading elements, to a degree depending on the position of the photo radiation intensity directional sensor in relation to a source of

photo radiation, said shading elements are thereby arranged for creating differences in output amplitudes from the sensing elements, which difference in amplitude is used for estimating the position of the source of radiation.

5. (Currently Amended) A photo radiation intensity directional sensor according to claim 3 ~~1~~, wherein the shading elements divide said chamber into sub compartments, each containing one or several sensing elements.

6. (Currently Amended) A photo radiation intensity directional sensor according to claim 5, wherein the chamber includes a top region forming part of said sub compartments, where said top region is vertically arranged in relation to said shading elements such that said shading elements do not prevent photo radiation from impinging on at least a portion of each sub compartment in said top region.

7. (Currently Amended) A photo radiation intensity directional sensor according to claim 6, wherein said top region is positioned vertically above said shading elements.

8. (Previously Presented) A photo radiation intensity directional sensor according to claim 5, wherein said chamber includes a bottom region forming part of said at least three sub compartments, where said bottom region is vertically arranged below an upper edge of each of said shading elements.

9. (Previously Presented) A photo radiation intensity directional sensor according to claim 3, wherein said sensing elements are positioned inside said chamber and being exposed to said diffusive compound.

10. (Previously Presented) A photo radiation intensity directional sensor according to claim 9, wherein said compound is arranged to preserve said sensing elements from oxidizing.

11. (Previously Presented) A photo radiation intensity directional sensor according to claim

3, wherein the printed circuit board carries further electronic circuits, and is positioned at least partly inside said chamber such that said electronic circuits and sensing elements are protected from negative influence on the environment by the diffusive compound.

12. (Previously Presented) A photo radiation intensity directional sensor claim 1, wherein said photo radiation intensity sensor includes a radiation filter transparent to a defined frequency interval, which radiation filter is arranged to block radiation outside said frequency interval from impinging on said sensing elements.

13. (Previously Presented) A photo radiation intensity directional sensor according to claim 12, wherein said radiation filter is constituted by said compound.

14. (Currently Amended) A photo radiation intensity directional sensor according to claim 12, <u>wherein</u> said radiation filter includes a lens element.

15. (Currently Amended) A photo radiation directional intensity sensor according to claim 2, wherein said sensing elements are sensitive to <u>at least one of</u> infrared and~~/or~~ visible light.

16. (Previously Presented) A photo radiation directional intensity sensor according to claim 3, wherein said diffusive compound is a liquid or a gel.

17. (Previously Presented) A photo radiation directional intensity sensor calibration method for a sensor having a housing with a transparent or translucent portion, a printed circuit board positioned in the housing, the printed circuit board having one edge facing the transparent or translucent portion, at least a first sensing element and a second sensing element sensitive to radiation being positioned at a first side of the printed circuit board, the first and second sensing elements being separated by a first flange, serving as a shading element, at least a third sensing element sensitive to radiation is placed at a second side of the printed circuit board, wherein said sensing elements are arranged to detect both the direction and the intensity of the radiation source and for producing output

signals which are used for estimating the sun radiation heating impact, and wherein the printed circuit board is arranged in such a way that it functions as a shading element between the areas on its first and second side where the sensing elements are mounted, comprising:

rotating the sensor 360° in azimuth and from 0° to 90° in elevation under a fixed light source, which rotation takes place in predetermined steps;

measuring all the azimuth steps for each elevation step, where each measurement results in a value from each sensing element that is part of the sensor;

saving the acquired data amount in the form of tables and comparing with those of an ideal solar sensor; and

calculating correction coefficients from this comparison.

18. (Previously Presented) Calibration method according to claim 17, wherein calculating correction coefficients includes forming tables containing these correction coefficients, which tables are converted into graphs, and storing the tables in a digital memory for every individual solar sensor.

19. (Previously Presented) A photo radiation directional intensity sensor measuring method for a sensor having a housing with a transparent or translucent portion, a printed circuit board positioned in the housing, the printed circuit board having one edge facing the transparent or translucent portion, at least a first sensing element and a second sensing element sensitive to radiation being positioned at a first side of the printed circuit board, the first and second sensing elements being separated by a first flange, serving as a shading element, at least a third sensing element sensitive to radiation is placed at a second side of the printed circuit board, wherein said sensing elements are arranged to detect both the direction and the intensity of the radiation source and for producing output signals which are used for estimating the sun radiation heating impact, and wherein the printed circuit board is arranged in such a way that it functions as a shading element between the areas on its first and second side where the sensing elements are mounted, comprising:

measuring the output values from each sensing element, and saving the measurement values to a digital memory;

calculating an average value of the signal acquired from the sensing elements, which average value is proportional to the intensity of the detected radiation;

calculating differences between output signals of opposite sensing elements;

calculating normalized values p and q of the above differences by dividing them with the average value;

calculating a first azimuth angle value $A_z = C_1 \arctan(p/q)$, where C_1 is a constant;

calculating a corrected azimuth angle value, using the calculated first azimuth value A_z and using comparison with correction coefficients;

calculating a first elevation angle value $E = C_2\sqrt{p^2 + q^2}$ where C_2 is a constant;

calculating a corrected elevation angle value, using the calculated first elevation angle value E and using comparison with correction coefficients;

calculating a first intensity value $I = C_3$ * the average value, where C_3 is a constant; and

calculating a corrected intensity value, using the calculated first intensity value E and using comparison with correction coefficients.

20. (Previously Presented) Measuring method according to claim 19, wherein the correction coefficients are those which are determined by: rotating the sensor 360° in azimuth and from 0° to 90° in elevation under a fixed light source, which rotation takes place in predetermined steps; measuring all the azimuth steps for each elevation step, wherein each measurement results in a value from each sensing element that is part of the sensor; saving the acquired data amount in the form of tables and comparing with those of an ideal solar sensor; and calculating correction coefficients from this comparison.

21. (Previously Presented) The measuring method according to claim 20, wherein calculating correction coefficients includes forming tables containing these correction coefficients, which tables are converted into graphs, and storing the tables in a digital memory for every individual solar sensor.

22. (New) The sensor according to claim 1, wherein the printed circuit board is oriented vertically in the housing, wherein the flange is oriented vertically in the housing and extends outwardly of the printed circuit board, wherein the first, second, and third sensors are positioned to extend in a vertical plane, respectively, wherein the first and second sensors face in a direction different than the third sensor, wherein the printed circuit board and the flange are the only devices to shade at least one of the first, second, and third sensors, and wherein the first, second, and third sensors respectively produce signals that indicate the azimuth, intensity and elevation of sun radiation.